WHAT IS CLAIMED IS:

1. A communications system for determining the position of an object, said system comprising:

an interrogator remote from the object and adapted to:

receive GPS signals from GPS satellites;

transmit pre-positioning data for each of the received GPS signals including the pseudorandom noise (PRN) code number, Doppler frequency offset and code phase offset and a tracking signal including reference time and frequency information; and

determine the pseudorange associated with at least one of the GPS signals using a subsequently received correlation snapshot; and

a transponder positioned on the object and adapted to:

receive the pre-positioning data and tracking signal;

collect RF samples of at least one of the GPS signals associated with one of the PRN code numbers;

correlate the RF samples of the GPS signal against code replicas of the GPS signal based on the Doppler frequency offset, code phase offset and reference time and frequency information for that GPS signal to produce the correlation snapshot; and

transmit the correlation snapshot to the interrogator.

2. The system of claim 1 wherein the transponder comprises a two bit sampler for collecting the RF samples.

3. The system of claim 1 wherein the interrogator is further adapted to transmit a wake-up signal prior to transmitting the pre-positioning data and the tracking signal, and the transponder comprises:

processing circuitry; and

a power subsystem adapted to maintain the processing circuitry in a power-off mode prior to receipt of the wake-up signal.

4. The system of claim 3 wherein the wake-up signal comprises an unmodulated carrier transmitted at a higher power than the pre-positioning data and the tracking signal

5. The system of claim 3 wherein the power subsystem comprises:

a switch connected to a receiver adapted to receive the wake up signal;

a passive standby circuit normally connected to the receiver through the switch;

a power supply control adapted to provide power to the processing circuitry and to be switched on and off by the passive standby circuit.

6. The system of claim 5 wherein the passive standby circuit comprises:

a low pass filter connected to the receiver and adapted to output a voltage, the voltage increasing as a function of time in response to receipt of an RF signal at the resonant frequency of low pass filter by the receiver; and

a comparator adapted to compare the output voltage to a threshold voltage and trigger the power supply control on when the output voltage is greater than the threshold.

7. The system of claim 3 wherein the passive standby circuit comprises:

three passive tuned filters, each connected to the receiver, two receivers adapted to detect continuous wave tone signals and one adapted to measure the noise and interference in the band of interest, each further adapted to output a corresponding voltage; and

a pair of comparators adapted to combine the three output voltages, compare the result to a threshold voltage and trigger the power supply control on when the result is greater than the threshold.

8. The system of claim 1 wherein the code replicas are generated by the transponder at regular offsets of some fraction of a C/A code chip.

9. The system of claim 1 wherein the correlation snapshot comprises a set of fixed-point correlator sums and a range offset in ships.

10. A method of determining the position of an object comprising:

receiving, at a location remote from the object, GPS signals from GPS satellites;

transmitting, at the location remote from the object, pre-positioning data for each of the received GPS signals including the pseudorandom noise (PRN) code number, Doppler frequency offset and code phase offset and a tracking signal including reference time and frequency information;

receiving, at the object, the pre-positioning data and tracking signal;

collecting, at the object, RF samples of at least one of the GPS signals associated with one of the PRN code numbers;

correlating, at the object, the RF samples of the GPS signal against code replicas of the GPS signal based on the Doppler frequency offset, code phase offset and reference time and frequency information for that GPS signal to produce a correlation snapshot;

transmitting, at the object, the correlation snapshot;

receiving, at the location remote from the object, the correlation snapshot; and

determining, at the location remote from the object, the pseudorange associated with at least one of the GPS signals using the correlation snapshot.

11. The method of claim 10 wherein the RF samples are collected using a two bit sampler.

12. The method of claim 10 wherein a plurality of correlators are located at the object and correlating comprises:

obtaining a noncoherent sum of a plurality of integrations using the plurality of correlators spaced one chip apart;

determining the approximate signal peak from the noncoherent sum;

prepositioning the correlators at a code phase predicted from the signal peak; and

performing an integration to produce a plurality of correlator sums.

13. The method of claim 12 wherein the correlation takes place within the space of one GPS data bit.

14. A transponder adapted to be associated with an object and for use in providing data to an interrogator remote from the object, the data for use in determining the location of the object, said transponder comprising:

a transceiver adapted to receive signals from the interrogator, the signals including pre-positioning data for GPS signals received by the interrogator including the pseudorandom noise (PRN) code number, Doppler frequency offset and code phase offset and a tracking signal including reference time and frequency information; and

a plurality of correlators adapted to collect RF samples of at least one of the GPS signals associated with one of the PRN code numbers and correlate the RF samples of the GPS signal against code replicas of the GPS signal based on the Doppler frequency offset, code phase offset and reference time and frequency information for that GPS signal to produce a correlation snapshot;

wherein the transceiver is further adapted to transmit the correlation snapshot to the interrogator.

15. The transponder of claim 1 further comprising a two bit sampler for collecting the RF samples.

16. The transponder of claim 1 wherein the interrogator is further adapted to transmit a wake-up signal prior to transmitting the pre-positioning data and the tracking signal, and the transponder comprises:

processing circuitry; and

a power subsystem adapted to maintain the processing circuitry in a power-off mode prior to receipt of the wake-up signal.

17. The transponder of claim 16 wherein the power subsystem comprises:

a switch connected to a receiver adapted to receive the wake up signal;

a passive standby circuit normally connected to the receiver through the switch;

a power supply control adapted to provide power to the processing circuitry and to be switched on and off by the passive standby circuit.

18. The transponder of claim 17 wherein the passive standby circuit comprises:

a low pass filter connected to the receiver and adapted to output a voltage, the voltage increasing as a function of time in response to receipt of an RF signal at the resonant frequency of low pass filter by the receiver; and

a comparator adapted to compare the output voltage to a threshold voltage and trigger the power supply control on when the output voltage is greater than the threshold.

19. The transponder of claim 16 wherein the passive standby circuit comprises:

three passive tuned filters, each connected to the receiver, two receivers adapted to detect continuous wave tone signals and one adapted to measure the noise and interference in the band of interest, each further adapted to output a corresponding voltage; and

a pair of comparators adapted to combine the three output voltages, compare the result to a threshold voltage and trigger the power supply control on when the result is greater than the threshold.